

SS 310L NAG, UNS S30600, WNR 1.4361, Grade 310L NAG, AISI 301L

Introduction :

Stainless steel 310L is designed to be used in nitric acid applications. To produce a more stable austenite microstructure that is free of intermetallic or carbide precipitations carbon and silicon contents are well controlled. Stainless steel 310L is however not recommended for concentrated nitric acid purposes or for highly oxidizing nitric acid solutions.

Products Available in forms :

- SS 310L NAG, UNS S30600, WNR 1.4361, Grade 310L NAG, Plates
- SS 310L NAG, UNS S30600, WNR 1.4361, Grade 310L NAG, Pipes
- SS 310L NAG, UNS S30600, WNR 1.4361, Grade 310L NAG, Round Bar
- SS 310L NAG, UNS S30600, WNR 1.4361, Grade 310L NAG, Tube
- SS 310L NAG, UNS S30600, WNR 1.4361, Grade 310L NAG, Flanges
- SS 310L NAG, UNS S30600, WNR 1.4361, Grade 310L NAG, Wire
- SS 310L NAG, UNS S30600, WNR 1.4361, Grade 310L NAG, Fittings

Chemical Composition

	SS 310L NAG	UNS S30600	WNR 1.4361	GRADE 310L NAG	AISI 301L
Carbon	0.015	0.015	0.015	0.015	0.015
Manganese	2.00max	2.00max	2.00max	2.00max	2.00max
Chromium	25.0	25.0	25.0	25.0	25.0
Nickel	20.5	20.5	20.5	20.5	20.5
Molybdenum	0.30max	0.30max	0.30max	0.30max	0.30max
Silicon	0.30max	0.30max	0.30max	0.30max	0.30max
Niobium	0.25max	0.25max	0.25max	0.25max	0.25max
Iron	51.63-54.48	51.63-54.48	51.63-54.48	51.63-54.48	51.63-54.48

Mechanical Properties

	SS 310L NAG	UNS S30600	WNR 1.4361	GRADE 310L NAG	AISI 301L
Tensile Strength, Mpa [psi] max	490(71100)	490(71100)	490(71100)	490(71100)	490(71100)
0.2% Yield Strength, Mpa [psi]max	215(31200)	215(31200)	215(31200)	215(31200)	215(31200)
Elongation %	40max	40max	40max	40max	40max
Reduction in Area, %	-	-	-	-	-
Hardness, Brinell	155	155	155	155	155

Welding

- AL 610 alloy is readily weldable by a gas-shielded arc welding procedure, such as gas tungsten arc welding.
- The use of filler metal having a composition within the range specified for the base alloy is recommended.
- However, since it is more highly alloyed than AL 610 material, AL 611 weld wire may also be used as filler metal when welding AL 610 material.
- It is important to minimize any sources of carbon or nitrogen contamination during welding, through good cleaning prior to welding and good shielding during welding.
- It is also recommended that the heat input during welding be kept low enough to prevent the formation of second phase precipitates, which could lower corrosion resistance.
- GTA welded tubes have been made from this alloy on the same equipment and using the same procedures as are used for more conventional austenitic grades.

Corrosion Resistance

- Because of its high chromium and silicon content, AL 610 alloy is very resistant to oxidizing environments, such as concentrated nitric acid.
- AL 610 alloy is resistant to Stress Corrosion Cracking [SCC].
- Because of its low carbon content, this alloy is also resistant to intergranular corrosion.

Application

- AL 610 is generally useful for the fabrication of any item that will be in contact with highly concentrated nitric acid.
- Typical applications include vessels, heat exchangers, piping, valves, pumps and other items associated with the production and storage of highly concentrated nitric acid.



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